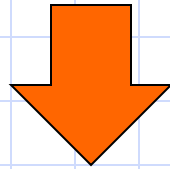# VHMS/WebCARE Introduction

**Service Business Development Group
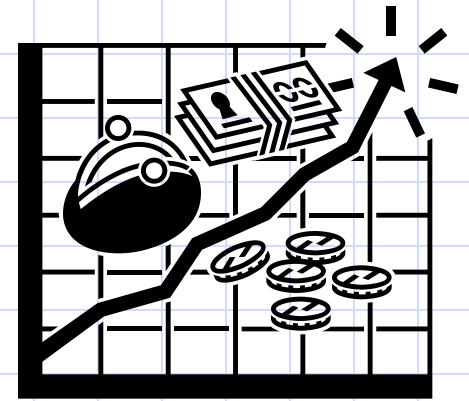Customer Support Division
Komatsu Limited**

KOMATSU

VHMS/WebCARE,

This is not a Service Tool but a management tool for R&M contract business.

Preventive & Proactive Action Using VHMS / WebCARE

- Reduce unexpected machine downtime
- Reduce Repair cost

1, What is VHMS?

Vehicle Health Monitoring System

So, VHMS

Usually,
Conduct Pm-CLINIC,

Periodically
ex.) Each
1,000h

Install
measuring
gauges

Record result
one by one

during machine operate
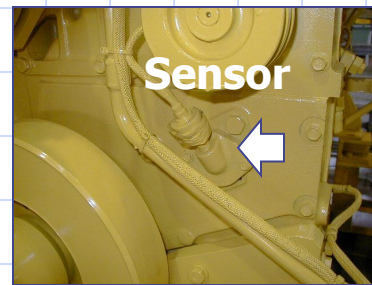
Sensor

Information from sensors on machine
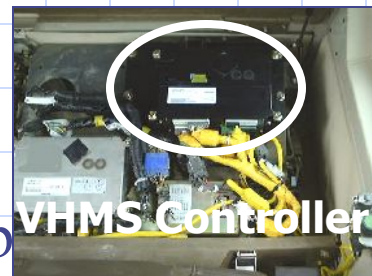
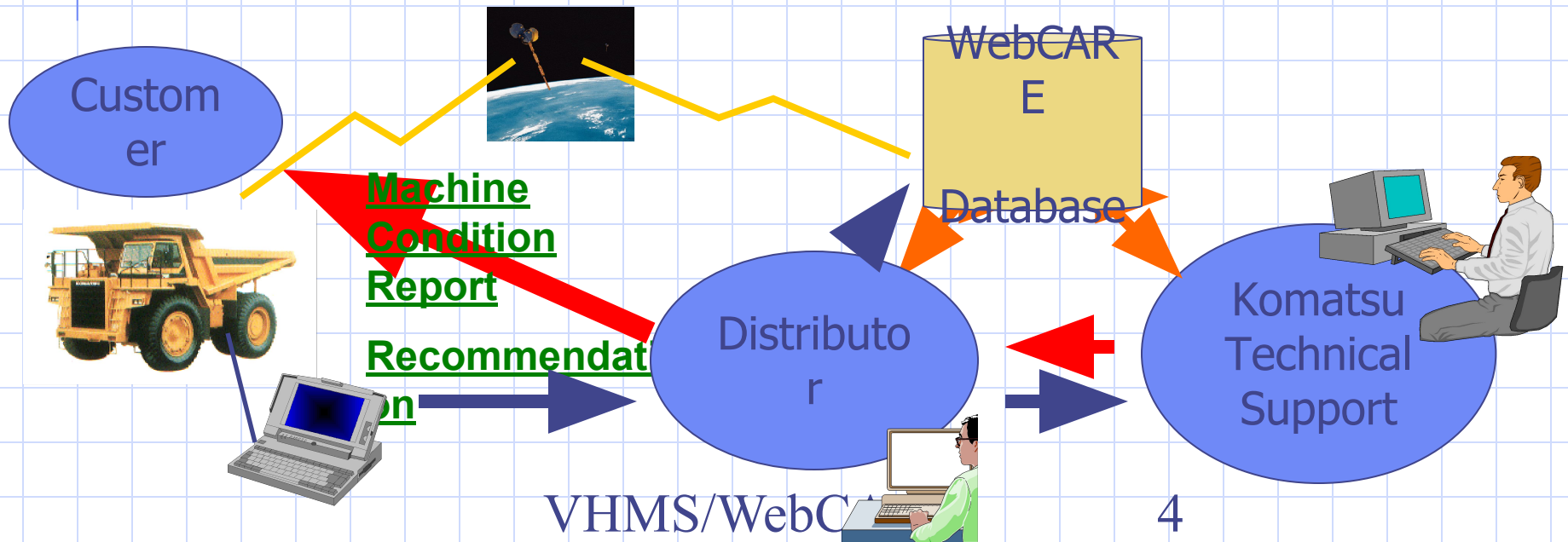VHMS Controller

Record data into VHMS controller automatically

Get machine information in VHMS controller
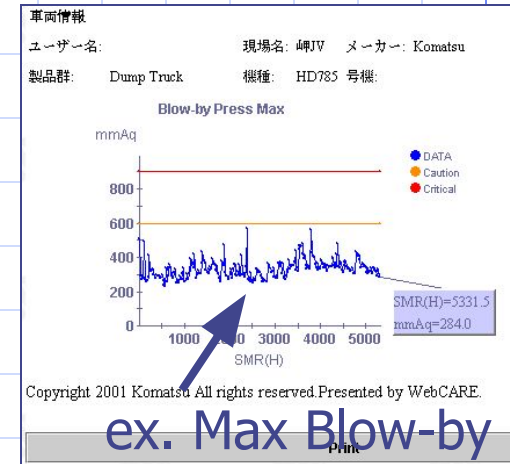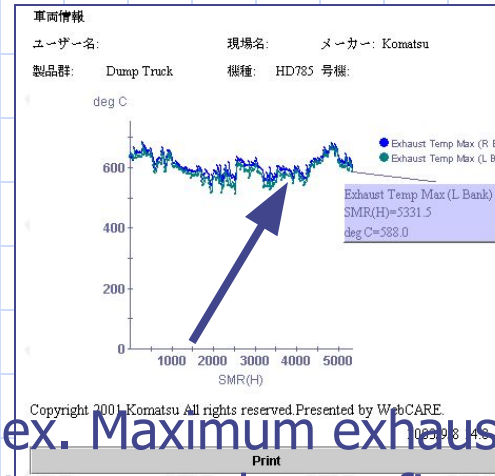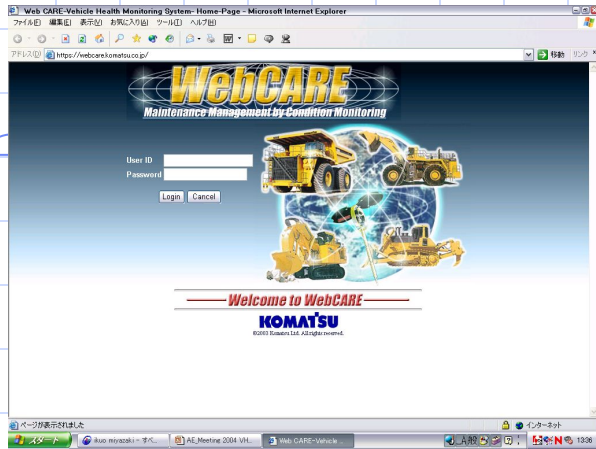
By PC downloading directly.

By Satellite communication (Orbcomm) automatically <Option>

Make it possible to recommend customer advanced technical support , Scheduled O/H plan for component and so on.

Customer

WebCARE Database

Machine Condition Report

Recommendation

Distributor

Komatsu Technical Support

VHMS/WebCARE

4

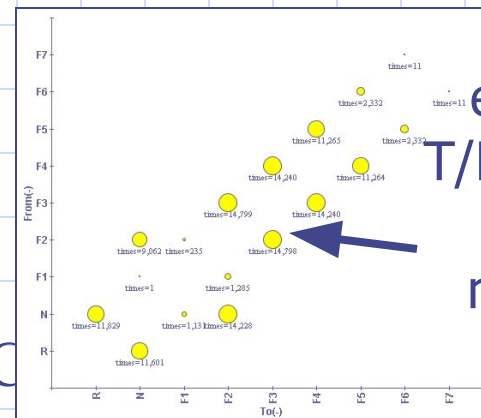# 2, What can be found by WebCARE?

(3) Trend Graph

(1) SMR

ex. Maximum exhaust temp can be confirm if combustion is normal or not.

ex. Max Blow-by pressure can be found condition of internal parts wear

(4) Load Map

(2) Error Code

ex. Frequency of T/M shift changing can be seen the machine severity and abuse.

発生時刻	SMR	エラーコード	内容	復帰時刻	対象コントローラ	スナップショット	件数
2003/06/30 07:54:34	4878.8	b0d2	T/Cオーバーヒート	1970/01/01 00:00:00	Transmission		1
2003/06/21 11:42:32	4812.6	C01C	エンジン回転センサB系異常	2003/06/21 13:29:50	Engine		1
2003/06/21 11:42:32	4812.6	C01b	エンジン回転センサA系異常	2003/06/21 13:29:50	Engine		1
2003/04/19 13:16:38	4389.7	b016	LEVER SIGNAL FAILURE B	2003/04/19 13:16:40	Transmission		1
2003/03/25 15:28:54	4172.2	b0E5	ステアリング油温オーバーヒート警報	2003/03/25 15:29:41	Transmission		1
2003/02/06 14:05:46	3805.1	b0d6	ラジエタ水位低下警報	2003/02/06 14:07:30	Transmission		1
2002/12/24 14:00:18	3593.4	b0d8	エンジンオーバーラン防止ブレーキ作動	2002/12/24 14:00:20	Transmission		1

VHMS Machines (Komatsu Japan product)

Policy of VHMS Application		Model	VHMS	Requirement of next generation model
Dozer	D375 class and up	D375-5	Option	STD from Tier3
		D475A-5	STD (Less Option)	STD
Excavator	PC1250 class and up	PC1250-7	Option	STD from Tier3
		PC1800-3	STD	STD
Loader	WA600 class and up	WA600-3	N/A	STD from Tier2/3
		WA700-3	Option	STD
		WA800/900-3	Under development (- 2005/April)	STD from Tier2
		WA1200-3	STD	STD
Truck	HD465 class and up	HD465/605-7	Option	STD from Tier3
		HD785/985-5	Option	STD from Tier2

VHMS & Orbcomm

	VHMS	Orbcomm
Japan	STD	OPT (R&M:STD)
USA	STD	OPT → STD
Australia	STD	OPT (Not yet available)
Europe	OPT	OPT
Asia	STD	OPT (Not yet available)
	⋮	⋮

Komatsu Ltd policy is all machines should be equipped with VHMS as standard.
We strongly recommend you to adopt VHMS as standard and Orbcomm if they are available.

Global Support System

Job site

KAC VHMS Support Team watch WebCARE every day. When abnormality occurs, Call centers supports KAI.

Komatsu LTD.

☐ :Planned

Subsidiaries, KAL & KCC Service HQ

Call Center Mooka Plant

Call Center Peoria Plant

Osaka Plant

Distributor

Distributor ← D.S.R ← **VHMS Support Team**

Oyama Plant

Call Center KMG

Distributor ← D.S.R

Awazu Plant

Data Upload

Watch every day

Factory QA

Via Satellite

WebCARE

Development Division CETC Design Engineer

IPA

Compo.

VHMS/WebCARE Global Support Center

-Durability improvement
-VHMS/WebCARE improvement

VHMS/WebCARE   8

Role of VHMS Support by each section

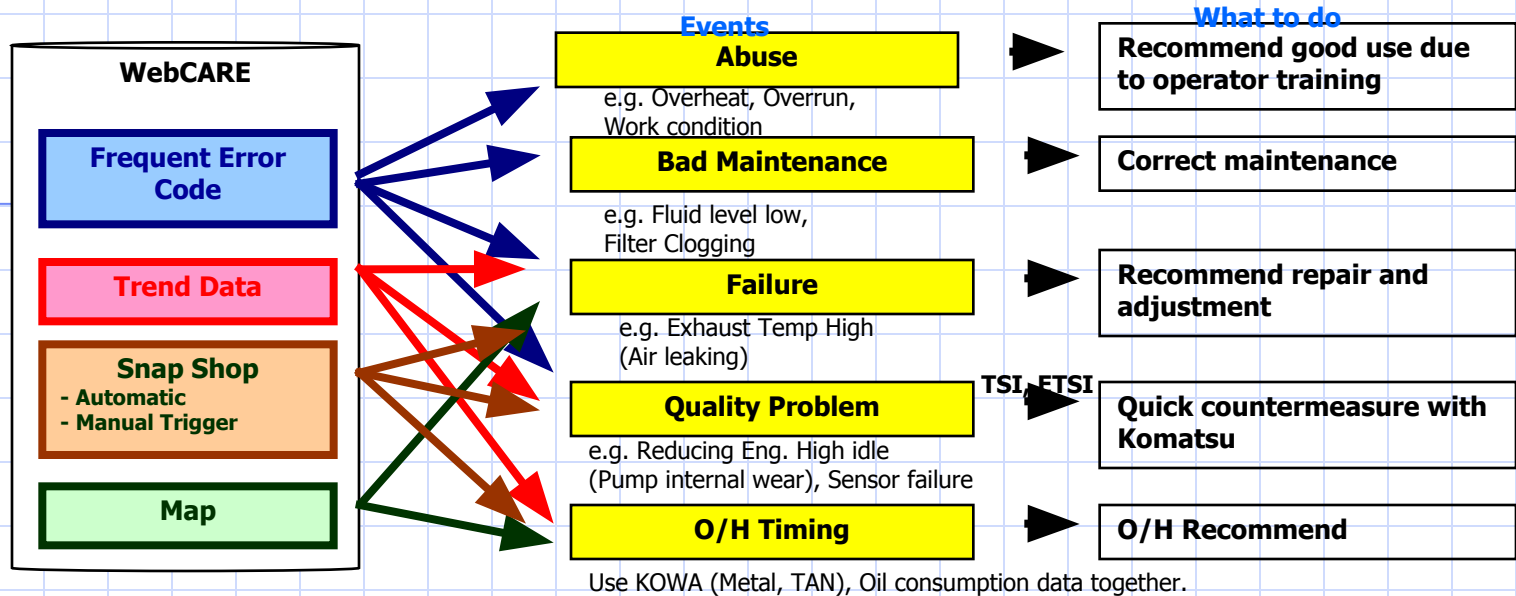| Distributor	VHMS Support Team	Call Center	Global Support Center
• Appoint Key person • Initial setting for VHMS & Orbcomm • Obtain customer's agreement for data usage • Carry out data download • **Take proper preventive & proactive action**	• Appoint person for VHMS Support leader and create team in each subsidiary. • Watch WebCARE every day. When abnormality occurs, Take proper action event by event. (See Next page)	• Watch WebCARE on other machines in the world when notable events happened. • **Support to Data analyst in local VHMS support team gathering engineering & factory peoples knowledge.** • Quick action to solve failure and quality problem. • Follow up SQP and boost countermeasure on quality and VHMS system problems.	• Gather actual examples, effective use and failure collection. And feed back globally. • Improve manual of data analysis and provide to local VHMS support team and distributors. • Feed back and improvement of durability and quality on current machine and next model change. • **Severity data from WebCARE to be reflected R&M cost estimation.**

Role of VHMS Support Team

WebCARE

- Frequent Error Code
- Trend Data
- Snap Shop
  - Automatic
  - Manual Trigger
- Map

Events

		What to do
Abuse		Recommend good use due to operator training
e.g. Overheat, Overrun, Work condition		
Bad Maintenance		Correct maintenance
e.g. Fluid level low, Filter Clogging		
Failure		Recommend repair and adjustment
e.g. Exhaust Temp High (Air leaking)		
Quality Problem	TSI, ETSI	Quick countermeasure with Komatsu
e.g. Reducing Eng. High idle (Pump internal wear), Sensor failure		
O/H Timing		O/H Recommend

Use KOWA (Metal, TAN), Oil consumption data together.

Supported by Call Center of Mooka, Osaka, Awazu, Oyama, Peoria and Dusseldorf.

Competitiveness in life cycle cost

Cost

Reduce

Repair cost

Longer life

SMR (h)